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Arsenic Poisoning in Bangladesh



Overview

Millions of tube-wells were dug beginning in the 1960s and 1970s financed by UNICEF and the World Bank in Bangladesh and West Bengal, India in an effort to provide enough water for agricultural purposes and to combat poor quality surface drinking water that was causing fatal diarrhea (#Mehovic and Blum, 2004). The wells, however, were dug without testing for metal impurities in the environment as the tests were not mandatory until years later and the wells became contaminated with arsenic. Around 75 million people are exposed to arsenic laden water and 200,000 to 270,000 deaths from Cancer will be seen in future (#Gilbert, 2004). This is thought to be the worst mass poisoning in history (#Mehovic and Blum, 2004). Because the Cancer takes decades to surface, the poisoning will be felt for years. Additionally, the 8-12 million contaminated wells across the country are still the main source of water (#Mehovic and Blum, 2004).

Background

In 1971, international aid agencies including the United Nations Children's Fund (UNICEF), the World Bank, and the United Nations Development Program (UNDP) began installing tubewells throughout Bangladesh and West Bengal (#Chaudhuri, 2004). There was a desperate need for sources of clean and safe drinking water because the surface water was contaminated with bacteria that was causing severe gastrointestinal problems that were killing a quarter of a million Bangladeshi children a year (#Mehovic and Blum, 2004). Additionally, the agricultural sector was beginning to demand year-round water sources that could fuel the new irrigation-intensive kind of rice that drove the Green Revolution. The wells reduced infant mortality but introduced the much more severe problem of arsenic-induced Cancer and other symptoms of Arsenic Poisoning.

Hundreds of thousands of tube wells were dug throughout Bangladesh and West Bengal, India to provide clean water but, at the time, arsenic contamination of the water supply was not recognized as a problem and the surrounding area was not tested for arsenic. The problems began appearing in the 1980s and included arsenicosis, which is the collective name for the symptoms of Arsenic Poisoning most notably lesions on the hands and feet (#Chaudhuri, 2004). As of 2004, around 100,000 people were suffering from these lesions and it is believed that, because the arsenic problem is relatively new and it takes up to 20 years for chronic Arsenic Poisoning to cause Cancer, that the Cancer rates are just beginning to trend up (#Chaudhuri, 2004). The WHO agrees and says that "over the next decade (2003-2013), skin and internal cancers are likely to become the principal human health concern arising from arsenic" and other experts believe that one in ten adult deaths in southern Bangladesh could be due to some form of cancer caused by Arsenic Poisoning (#Chaudhuri, 2004).

Causes of Poisoning

The arsenic found in the well-water seems to be purely geological (#Chaudhuri, 2004). Though some have tried to claim that the Green Revolution's indiscriminate use of fertilizers and pesticides are the cause for the arsenic in the water, it appears clear that the high level of inorganic and organic arsenic has leached into the wells dug between 20 and 150 meters though the exact mechanism is still not known precisely (#Mehovic and Blum, 2004).

The arsenic found deep in the earth's core is stripped from the earth and then deposited in the groundwater which is then pumped up for drinking (#Black, 2004). Scientists now believe that certain types of bacteria may be responsible for isolating and stripping the arsenic out of the earth and depositing it in the water (#Black, 2004).

Extent of Poisoning

Arsenic contaminated water is being consumed, and will continue to be consumed, by millions of people throughout Bangladesh and West Bengal, India because there has been no alternate to the wells. More than 30 million people in Bangladesh and more than 6 million people across the border in West Bengal, India were at risk in the area according to 2000 statistics and the lifetime risk of dying by Cancer in the area is as high as 13 per 1000 people (#Mehovic and Blum, 2004).

The amount of people affected by arsenic-laden water is also believed to be low because the Bangladeshi and Indian governments use the archaic 50 ug/L standard for safe drinking water when both the EPA and the World Health Organization have a standard of 10 ug/L (#Chowdhury, et al, 2000). Additionally, numerous crops are being contaminated with arsenic by using contaminated water for irrigating crops (#Black, 2004).

Clean-Up and Reaction

The clean-up of this devastating problem has gone slow for a few reasons. First, is the extreme poverty of most Bangladeshis. It is one of the poorest nations in the world with per capita income around \$370 a year (#Mehovic and Blum, 2004). This means that the government does not have the funds to adequately address the issue and the people there do not have the ability to confront the issue themselves. Nor do they have adequate medical care as 60% of Bangladeshis, or 80 million people, do not have access to modern health services (#Mehovic and Blum, 2004). Because of the poverty, lack of

education, abundance of remote villages and slums, and scope of the problem, the Bangladeshi government has had a hard time building awareness of the problem, even though there is little they can do for it (#Chaudhury, 2004).

Additionally, the mechanisms of how the arsenic leaches into the water is not well known which makes confronting the problem exponentially more difficult (#Black, 2004). The World Bank gave \$30 million in aid to Bangladesh in 2004 to help water purification efforts and health care of those affected (#Mehovic and Blum, 2004).

Some ways to avoid drinking contaminated groundwater are to purify the water once it is drawn, which is most often done by letting the water sit outside for a number of hours after it is drawn which allows the harmful [inorganic arsenic to be converted to the less harmful organic arsenic (#Black, 2004 and#Chaudhuri, 2004).

Drinking water not from tubewells is also an option at times. Unfortunately, surface water and water from the shallower dugwells are still contaminated with bacteria that cause water-borne disease and require severe treatment prior to drinking, which was the reason the tubewells were constructed initially (#Chaudhuri, 2004). Unfortunately, most Bangladeshis are too poor, to unaware, or have no other option than drinking the contaminated water.

External Links

- Arsenic Poisoning in Bangladesh on SOS-Arsenic

References

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